

THE ACULEATE HYMENOPTERA OF HORTON NATIONAL NATURE RESERVE, GOWER, WEST WALES

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ABSTRACT

Horton NNR, Glamorgan (VC41), is highlighted as a site of importance for aculeate Hymenoptera with one hundred and eighteen species so far recorded. *Sphecodes longulus* von Hagens is recorded for the first time in Wales from the reserve, extending its distribution westward from southern England. Other scarce species that occur on the reserve are discussed and a full species list provided.

INTRODUCTION

The aims of this paper are to highlight some of the noteworthy species of aculeate Hymenoptera that occur at Horton National Nature Reserve, species which are not only rare in the county of Glamorgan but are rare in the principality, and to underline the conservation importance of the site in a regional context.

Very little has been published on the aculeate Hymenoptera of Glamorgan since Hallett's 1928 faunal list of the county (Cooter, 1987, Blacker, 1989, Archer, 1992, 1994, Pavett, 1999, Skidmore, 1999). Also, there have been no sites within the county for which a complete list has been published. However, a number of reports commissioned by the Countryside Council of Wales have been written highlighting the importance of certain aculeate species in Wales or of habitats that support them (Fowles, 1994, 1996, Howe, 1998, 2002). There has also been a considerable amount of work undertaken by the UK Biodiversity Action Plan Bumblebee Working Group between 1998 and 2002 (Edwards, 1998, 1999, 2000, 2001, 2002).

SITE DESCRIPTION

Horton National Nature Reserve is situated on the south Gower coast, between Port Eynon to the west and Oxwich Bay to the east and extends for approximately one kilometre along the coast. (Grid reference SS479854–SS492852). The richness of the site is due to a combination of factors. These include the south facing aspect, vital for such warmth-loving insects and the head deposits of periglacial weathered sand, clay and gravel overlying the Carboniferous limestone of the lower slopes which provide a large area of substrate that are ideal for nesting sites. There are also extensive areas of calcareous grassland and maritime heath with a rich flora, that provide pollen and nectar sources and areas in which to hunt other invertebrates as prey. This combination of features makes Horton NNR one of the richest sites for aculeate Hymenoptera in Glamorgan, and indeed, in Wales.

RDB AND NOTABLE SPECIES OCCURRING AT HORTON NNR

There are very few sites in Wales where the aculeate fauna exceeds a hundred species, Horton NNR is one of them, boasting an aculeate fauna of one hundred and

eighteen species. A number of species hold Notable or RDB status, with two RDB2, *Andrena rosae* Panzer, *Cryptocheilus notatus* (Rossius); three RDB3, *Andrena hattorfiana* (F.), *Nomada lathburiana* (Kirby), *Arachnospila consobrina* (Dahlbom); six Na, *Andrena marginata* F., *Eucera longicornis* (L.), *Nomada fucata* Panzer, *Sphecodes longulus* von Hagen, *Leptothorax albipennis* (Curtis), *Oxybelus argentatus* Curtis; and nine Nb, *Andrena trimmerana* (Kirby), *Nomada flavopicta* (Kirby), *Osmia bicolor* (Schrank), *Stelis punctulatissima* (Kirby), *Priocnemis gracilis* Haupt, *Priocnemis schioedtei* Haupt, *Nysson dimidiatus* Jurine, *Podalonia hirsuta* (Scopoli) and *Methocha ichneumonides* Latreille.

SPHECODES LONGULUS NEW TO WALES

Sphecodes longulus von Hagen (Apidae: Halictinae) is a cleptoparasite of *Lasioglossum* species (Apidae: Halictinae), *Lasioglossum minutissimum* (Kirby), *L. morio* (F.) and *L. leucopum* (Kirby) having been cited as possible hosts (Falk, 1991), the latter two species occurring at Horton NNR. *Sphecodes longulus* is regarded as a rare and local species and was considered until recently to be confined to southern England (Falk, 1991). It is most frequently recorded from dry, sandy heathland but also occurs in other sandy areas such as sand pits and coastal cliffs and rarely in open, broadleaved woodland. A single female was taken on *Daucus* alongside the coastal path at Horton on 22.vii.1996, this being the first record for the species from Wales (det. confirmed by M. Edwards). This record greatly extends its distribution into western Britain, see Falk (1991).

NOTABLE HYMENOPTERA

A number of species that occur at Horton NNR are of very restricted distribution in Wales enhancing the value of the reserve. Until recently the only known colony of *Andrena hattorfiana* (F.) in Wales was found to be at Horton NNR where it visits *Knautia arvensis* (L.) and probably *Scabiosa columbaria* L. for pollen. The species has however, recently been recorded at Caerwent, an abandoned Ministry of Defence site, near to Newport in Gwent by M.A. Howe and about a mile to the west of Horton NNR on the south Gower coast at Overton SSSI by M. Edwards (pers. comm.). The species is far from common on the reserve but does occur in most years, most frequently in odd years, i.e. 2001 & 2003. *Andrena rosae* has only been recorded in Glamorgan from this reserve and from the coastal cliffs at Lavernock in the east of the county (Hallett, 1928). On the 30.iii.2002, I recorded a single male from the reserve.

Nomada lathburiana (Kirby) has only been found once on 26.v.1997 and its host, *Andrena cineraria* (L.) is not common on the reserve. This species seems to be commoner in the north of Glamorgan. *Eucera longicornis* (L.) is common, visiting flowers of *Trifolium*, *Vicia* and *Geranium*. A single *Arachnospila consobrina* (Dahlbom) was recorded on *Daucus* on 26.v.1997. This species, however, is characteristic of dune sites and it is probable that this was a stray individual from the nearby sand dunes of Port Eynon which lie at the western end of Horton NNR. The tiny ant, *Leptothorax albipennis* (Curtis) occurs fairly commonly on the limestone grasslands and screes, often being recorded nesting in the cracks of fallen limestone boulders.

There are four species, *Andrena coitana* (Kirby), *Nomada obtusifrons* Nylander, *Coelioxys rufescens* Lepeletier & Brulle, *Cryptocheilus notatus* (Rossius) that were recorded from Horton in the past which have not been found since the 1920s. Three of these species are still to be found at other sites in Glamorgan but *C. notatus* has

not been recorded from Wales since 1914 (Fowles, 1996) and may now be extinct in the principality. It should be remembered however, that such sites are not static, but that species leave and may recolonise, with populations fluctuating markedly from year to year as habitat and climatic conditions change. In the 1930s H.M. Hallett regarded the bee *Andrena flavipes* Panzer as rare in the county of Glamorgan, and in Wales as a whole, and its cleptoparasite *Nomada fucata* Panzer was unrecorded (Hallett, 1928). Today this *Andrena* is the commonest bee at Horton NNR and the *Nomada*, with the exception of *Nomada marshamella* (Kirby), the most frequently recorded of its genus.

Another example is the anthophorine bee *Melecta albifrons* (Forster), a very scarce species in Wales. For the last fifteen years I have searched a large nesting aggregation of its host, *Anthophora plumipes* (Pallas) at Horton NNR without any success. In the spring of 2001 the *Melecta* was apparently outnumbering the host. Whether this species has always occurred at the site in small numbers, moved in from an undiscovered colony of its host nearby, or has come from farther afield is unknown, the former being the most likely explanation. On the other hand the RDB bee, *A. rosae* was recorded by Hallett on one occasion, July 1914 (Hallett, 1927), and has only been recorded on one occasion since.

Whilst there are many sites in the south and south east of England that have larger aculeate faunas, Horton NNR is one of the most important sites in Wales and western Britain on account of the number of species and associated insects that occur there. It is important, that monitoring and recording continues at Horton NNR, so that, as complete a picture as is possible, may be obtained of this important reserve. It is also important to monitor any changes in the aculeate fauna that may take place and to identify any detrimental changes that may be occurring. A full list of species is given in the Appendix.

INSECTS ASSOCIATED WITH ACULEATE HYMENOPTERA

A number of non-hymenopteran parasitic species that are dependent on the aculeates as hosts for their larvae occur on the reserve. The beetle *Meloe proscarabaeus* L. (Meloidae), which is parasitic primarily on bees of the genera *Anthophora* and *Osmia*, is very common as an adult in the early spring, whilst its triungulins are to be found on a wide variety of bees and wasps during the summer months.

The Diptera form an important component of this fauna. Three species of bee fly, *Bombylius major* L., *B. canescens* Mikan and *B. discolor* Mikan, whose larvae prey upon the larvae and/or pupae of aculeates, are recorded from the site. *Bombylius discolor* is a notable species and Horton NNR supports a good population of this fly, the adult being frequently met with in the early spring.

The Conopidae are a family of flies that are internal parasites of adult bees and wasps. Four species have been recorded at Horton, *Physocephala rufipes* (F.), *Thecophora atra* (F.), the notable *Thecophora fulvipes* Robineau-Desvoidy and *Sicus ferrugineus* (L.). Additional species of interest include the sarcophagid fly *Metopia argyrocephala* (Meigen) and the RDB hoverfly *Chrysotoxum elegans* Loew which also occur frequently on the reserve. Clearly there is scope for more intensive recording of these groups at Horton.

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APPENDIX

CHECKLIST OF SPECIES RECORDED FROM HORTON NNR

Species recorded by Hallett which have not been found since are marked with an asterisk*. It should be noted that Hallett made a number of records from "Porteynon", several of which probably refer to Horton, and not to the sand dunes and cliffs at Porteynon, so it was thought better to leave these records out of the checklist. Voucher specimens for all species recorded below are held in the collections of the National Museum of Wales and in P.M. Pavett's private collection.

Apidae – Andreninae

Andrena barbilabris (Kirby), *A. bicolor* F., *A. cineraria* (L.), **A. coitana* (Kirby), *A. denticulata* (Kirby), *A. flavipes* Panzer, *A. fulva* (Müller), *A. haemorrhoea* (F.), *A. hattorfiana* (F.), RDB3, *A. marginata* F., Na, *A. minutula* (Kirby), *A. nigroaenea* (Kirby), *A. ovatula* (Kirby), *A. pubescens* Olivier, *A. rosae* Panzer, RDB2, *A. scotica* Perkins, *A. thoracica* (F.), *A. trimmerana* (Kirby), Nb, *A. wilkella* (Kirby), *Panurgus banksianus* (Kirby), *P. calceratus* (Scopoli).

Apidae–Anthophorinae

Anthophora plumipes (Pallas), *A. furcata* (Panzer), *Eucera longicornis* (L.), Na, *Melecta albifrons* (Forster), *Nomada fabriciana* (L.), *N. flava* Panzer, *N. flavopicta* (Kirby), Nb, *N. fucata* Panzer, Na, *N. goodeniana* (Kirby), *N. lathburiana* (Kirby), RDB3, *N. marshamella* (Kirby), **N. obtusifrons* Nylander, *N. ruficornis* (L.), *N. striata* F.

Apidae–Apinae

Apis mellifera L., *Bombus hortorum* (L.), *B. lapidarius* (L.), *B. jonellus* (Kirby), *B. lucorum* (L.), *Bombus major* L., *B. canescens* Mikan and *B. discolor* Mikan. *B. pascuorum* (Scopoli), *B. terrestris* (L.), *B. campestris* (Panzer).

Apidae–Colletinae

Colletes fodiens (Geoffroy), *C. similis* Schenck, *Hylaeus hyalinatus* Smith.

Apidae–Halictinae

Lasioglossum calceatum (Scopoli), *L. leucopum* (Kirby), *L. leucozonium* (Schränk), *L. morio* (F.), *L. punctatissimum* (Schenck), *L. smaelmanellum* (Kirby), *Halictus tumulorum* (L.), *Sphecodes ephippius* (L.), *S. geoffrellus* (Kirby), *S. longulus* von Hagen Na, *S. monilicornis* (Kirby).

Apidae–Megachilinae

Anthidium manicatum (L.), **Coelioxys rufescens* Lep. & Serv., *Hoplitis spinulosus* (Kirby), *Megachile maritima* (Kirby), *Osmia bicolor* (Schränk) Nb, *Stelis punctulatissima* (Kirby) Nb.

Bethylidae

Bethylus cephalotes (Foerster), *B. fuscicornis* (Jurine).

Chrysididae

Chrysis ignita (L.), *C. viridula* L., *Omalus auratus* (L.), *Trichrysis cyanea* (L.).

Formicidae

Formica cunicularia Latreille, *Lasius alienus* (Forster), *L. flavus* (F.), *Lasius niger* (L.), *L. umbratus* (Nylander), *Leptothorax albipennis* Curtis Na, *Myrmica scabrinodis* Nylander, *M. ruginodis* Nylander, *Myrmecina graminicola* (Latreille), *Tetramorium caespitum* (L.).

Mutillidae

Myrmosa atra Panzer.

Pompilidae

Anoplus nigerrimus (Scopoli), *A. infuscatus* (Vander Linden), *Arachnospila consobrina* (Dahlbom) RDB3, **Cryptocheilus notatus* (Rossius) RDB2, *Evagates crassicornis* (Shuckard), *Episyron rufipes* (L.), *Pompilius cinereus* (F.), *Priocnemis exaltata* (F.), *P. gracilis* Haupt Nb, *P. parvula* Dahlbom, *P. pusilla* Schiodte, *P. schioedtei* Haupt Nb.

Sapygidae

Sapyga quinquepunctatus (F.).

Sphecidae

Cerceris arenaria (L.), *Crabro cribrarius* (L.), *Crossocerus elongatulus* (Vander Linden), *C. podagricus* (Vander Linden), *C. quadrimaculatus* (F.), *Ectemnius continuus* (F.), *Entomognathus brevis* (Vander Linden), *Gorytes tumidus* (Panzer), *Lindenius albilabris* (F.), *Nysson dimidiatus* Jurine Nb, *N. spinosus* (Forster), *Oxybelus argentatus* Curtis Na, *O. unigumis* (L.), *Passaloecus gracilis* (Curtis), *Pemphredon lethifer* (Shuckard), *Podalonia hirsuta* Scopoli Nb, *Tachysphex pompiliformis* (Panzer), *Trypoxylon figulus* (L.).

Tiphiidae

Methocha ichneumonides Latreille Nb.

Vespidae

Odyneres spinipes (L.), *Ancistrocerus oiventris* (Wesmael), *A. scoticus* (Curtis), *Dolichovespula norwegica* (F.), *D. sylvestris* (Scopoli), *Paravespula germanica* (F.), *P. vulgaris* (L.).